

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
20 January 2005 (20.01.2005)

PCT

(10) International Publication Number
WO 2005/004910 A3

(51) International Patent Classification⁷: **A61K 39/29**,
C07K 14/18

(21) International Application Number:
PCT/EP2004/007540

(22) International Filing Date: 9 July 2004 (09.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03450171.8 11 July 2003 (11.07.2003) EP
04450062.7 12 March 2004 (12.03.2004) EP

(71) Applicant (for all designated States except US): **INTER-CELL AG** [AT/AT]; Campus Vienna Biocenter 6, A-1030 Vienna (AT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BUSCHLE**,

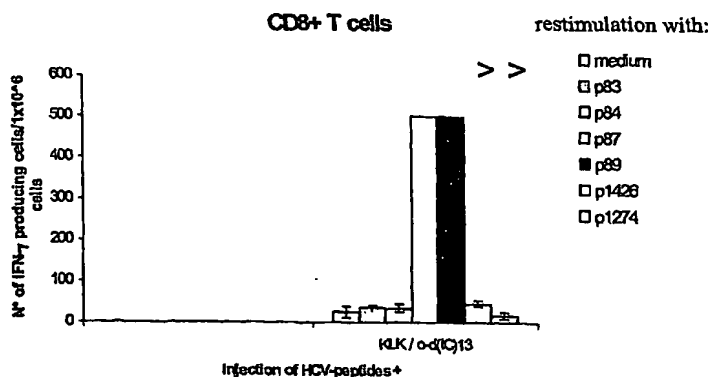
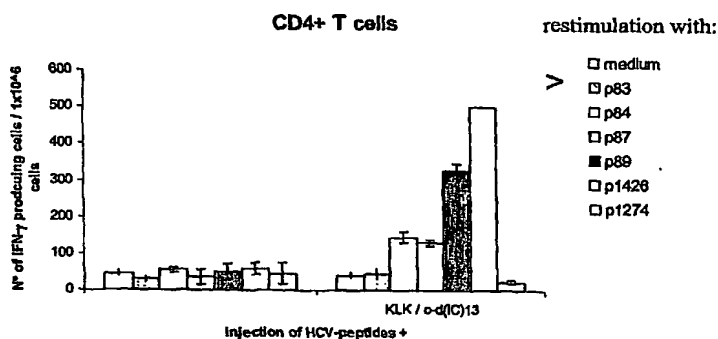
Michael [DE/AT]; Goethestrasse 2/2/9, A-2380 Perchtoldsdorf (AT). **FRISCH**, Jürgen [DE/DE]; Johannes-Acker-Strasse 15, 35041 Marburg (DE). **KLADE**, Christoph [AT/AT]; Gröhrmühlgasse 1B/17, A-2700 Wiener Neustadt (AT). **LINGNAU**, Karen [DE/AT]; Gallgasse 8/10, A-1130 Vienna (AT). **ZAUNER**, Wolfgang [AT/AT]; Parkgasse 13/3/22, A-1030 Vienna (AT). **ZETTLMEISSL**, Gerd [DE/AT]; Schottenfeldgasse 71/20, A-1070 Vienna (AT).

(74) Agent: **SONN & PARTNER PATENTANWÄLTE**; Riemergasse 14, A-1010 Wien (AT).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,

[Continued on next page]

(54) Title: **HCV VACCINES**



(57) Abstract: Disclosed is a Hepatitis C virus (HCV) vaccine comprising at least two epitopes, each from a different hotspot epitope, wherein a hotspot epitope is defined as an epitope containing peptide selected from the group consisting of KFPGGGQIVG-GVYLLPRRGPRLGVRATRK, GYKVLVLNPSVAAT, AYAAQGYKVLVLNPSVAAT, DLMGYIP(A/L)VGAPL, GEVQVVS-TATQSFLATCINGVCWTV, HMWN-FISGIQYLAGLSTLPGNPA, VDYPYRL-WHYPC(V/I)N(F/Y)TIFK(V/I)RMYVG-GVEHRL, AAWYELTPAETTVRLR, GQGWRLLAPITAYSQQTRGLLGCI, IGLGKVLVDILAGYGAGVAGALVAFK, FTDNSSPPAVPQTFQV, LEDRDRSEL-SPLLLSTTEW, YLVAYQATVCARAQAPP-SWD, MSTNPKPQRKTKRNTNR, LINTNGSWHINRTALNCNDSL, TTILGIGTVLDQAET, FDS(S/V)VL-CECYDAG(A/C)AWYE, ARLIVFPDL-GVRVCEKMALY, AFCSAMYVGDLGSGV, GVLFGLAYFSMVGW, VVCCSM-SYTWGTALITPC, TRVPYFVRAQGLIRA and TLLFNILGGWVAAQ.

WO 2005/004910 A3



PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) **Date of publication of the international search report:**

21 April 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.